



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
20.11.2002 Bulletin 2002/47

(51) Int Cl.7: **B65D 83/08**

(21) Application number: **01870101.1**

(22) Date of filing: **14.05.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

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(54) **Container suitable for dispensing wet wipes**

(57) This invention relates to containers suitable for dispensing wipes comprising a rigid container having a top (1), side walls (2) and a dispensing opening that extends over more than one side wall. Also disclosed is a

process of loading such rigid containers with wipes comprising the steps of loading the wipes into the container via the bottom loading opening then sealing the bottom opening closed.

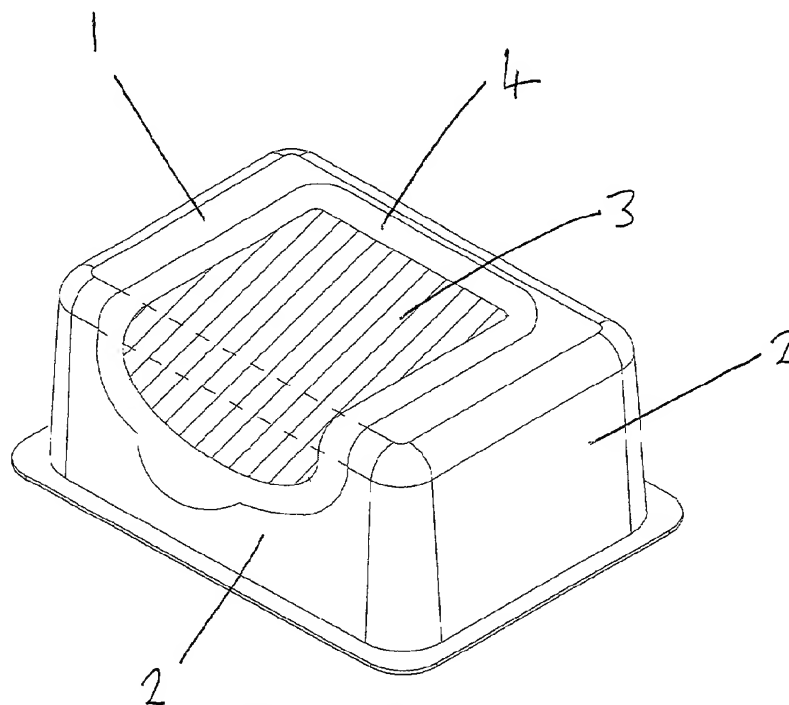


FIG. 1

DescriptionTechnical field

5 **[0001]** The present invention relates to containers suitable for dispensing wet wipes.

Background

10 **[0002]** Containers suitable for dispensing wet wipes are known in the art. Flexible containers comprising wet wipes are described in, for example, WO91/04920. The prior art also describes rigid containers suitable for dispensing wet wipes in, for example, US5791465.

[0003] In order to allow the consumers convenient access to the wipes, containers generally comprise a dispensing opening. In the containers of the prior art these openings are generally situated on the upper face of the container. In order to prevent egress of moisture from the wipes, known containers generally comprise a lid or sealing device. Said sealing devices or lids can usually be repeatedly opened and resealed.

15 **[0004]** A problem with the rigid containers of the prior art is that consumers find it difficult to access the wipes within the container. Some consumers, having larger than average fingers, find it inconvenient to reach into the dispensing opening in order to select, grip and remove a wipe. Other consumers, especially the elderly and disabled, lack dexterity and find it difficult to grip the wipes by making relatively small movements with the fingers. The difficulties of removing the wipes are compounded by the limited visibility afforded by the dispensing openings of the prior art containers. It is especially difficult to reach deep into the wipes container in order to remove the last wipe.

20 **[0005]** A further problem with the containers of the prior art is that it is difficult to remove multiple wipes simultaneously. In the event that the consumer suddenly needs multiple wipes as quickly as possible, for example, to clean a spillage, it is very difficult to reach into, grip the multiple wipes and pull them from the container without damaging the wipes, damaging the container, squeezing the moisture from the wipes and/or abrading the skin against the edges of the container.

[0006] It is therefore an objective of the present invention to provide a rigid container from which wipes can be more easily removed. Rigid containers having a top, and side walls, and having a dispensing opening extending over the top and at least one side wall, according to the present invention, meet the aforementioned objective.

30 **[0007]** Containers according to the present invention have a number of advantages compared to alternative containers.

[0008] Rigid containers having a top and side walls ("rigid containers") are preferable due to their more robust construction that allows them to withstand scratches and small cuts without damaging the contents of the package. Rigid containers also have a more predictable size therefore allowing them to be more easily stacked and displayed in the retail outlet and in the home. The rigidity of the container protects the contents from external pressure therefore preventing the wipes being squashed out of shape or having the moisture squeezed from the wipes so that they have uneven loading of moisture.

35 **[0009]** Rigid containers according to the present invention comprise an opening that extends over the top and at least one side wall and which is preferably covered by a resealable sealing device. Such a preferred container is advantageous over containers that comprise a section that is cut, torn or pulled from the packaging to reveal an opening. One advantage of a resealable seal is that the wipes package can be opened and resealed as many times as is required without the moisture evaporating from the wipes. If the opening section were cut or torn away from the container, the remaining wipes would dry out soon after opening. A further advantage is that the consumer does not need to dispose of the section that is torn from the container. Instead, the sealing device remains conveniently attached to the container through out the lifetime of the container.

Background art

50 **[0010]** In order to provide a rigid container that comprises wet wipes and a resealable seal, at least one manufacturer provides a rigid box comprising three separate sections, namely, the lid, the body and a flexible container comprising wipes and a resealable seal. The lid comprises a dispensing opening and is attached to the main body once the flexible container of wet wipes is loaded into the main body. In order to access then wipes, the consumer must open the dispensing opening on the lid, open the resealable seal on the flexible container, remove the wipe, reseal the flexible container then reseal the dispensing opening on the lid. Containers according to the present invention require only one seal to be opened and closed during use as well as requiring less separate components to assemble during the manufacturing process.

Summary of the invention

[0011] The present invention relates to a rigid container having a top, and side walls, and having a dispensing opening extending over the top and at least one side wall.

[0012] The present invention further encompasses a process of loading a container according to the present invention with wipes comprising the steps of loading the wipes into the container via the bottom loading opening then sealing the bottom opening closed.

Detailed description of the invention

[0013] The invention will now be described by way of example and with reference to the accompanying figures.

[0014] Fig 1 shows a rigid container according to the present invention having a top 1, and side walls 2, and having a dispensing opening extending over the top and at least one side wall. Said dispensing opening is covered by a sealing device comprising an adhesive film 4 and a rigid section of material 3.

[0015] Fig 2 shows a rigid container according to the present invention in an inverted position having a loading opening sealed by a film 5.

[0016] It has been surprisingly found that by providing a rigid container comprising a dispensing opening that allows the user to access the wipes simultaneously through two faces of the container, wet wipes can be removed more easily.

[0017] The most preferred method of removing a wipe is to reach into the container, grip a wipe between thumb and forefinger then pull the wipe from the container. The provision of a dispensing opening which extends over two sides of the container has a number of benefits, including improved access to the wipe, improved reach into the container, improved visibility of the wipes before and during the removal process and improved ability to remove multiple wipes simultaneously. In particular, the improved access to the container makes the removal of the last wipe easier.

[0018] As discussed above, the provision of a dispensing opening extending over the top and one side wall of the container affords improved access to and removal of the wipes. However, in the process of developing containers according to the present invention, we have noticed that the containers according to the present invention can be further improved by providing a good seal between a sealing device and the container.

[0019] Indeed, we have observed that it is difficult to obtain a good seal with containers that comprise a flexible adhesive sealing film. This is particularly evident once the container has been opened and closed on several occasions. While this method of sealing provides a convenient and cost effective seal, it suffers from the existence of small channels that allow the transfer of air and moisture through the seal leading to drying of the wipes and, in the case of scented wipes, egress of perfume. In addition, inappropriate release of perfume may lead to consumer dissatisfaction. These channels are formed by wrinkles in the flexible adhesive film as it is pressed into position on the surface of the container. The existence of the channels is made more likely by having a dispensing opening that is situated in a non-flat surface. The dispensing openings according to the present invention extend over more than one side of the container therefore any seal must pass over at least one corner thus leading to increased difficulty in achieving a greater seal.

[0020] In the process of developing containers according to the present invention, we have found that an improved seal can be achieved by providing a sealing device whose shape is pre-organized to as to closely match the shape of the surface to be sealed. We have achieved this by increasing the rigidity of the sealing device. Preferably, the rigid sealing device comprises a rigid section of material 3 having similar size and shape to the section of the package that was removed in order to form the dispensing opening. More preferably, the rigid section is the same section of material that was cut from the container to form the dispensing opening. When the rigid sealing device forms a complementary fit, there is less likelihood of channels forming between the adhesive surface of the sealing device and the container surface. The rigid section 3 of the rigid sealing device preferably comprises high impact polystyrene, polypropylene, polyethylene terephthalate, low density polyethylene, linear low density polyethylene, medium density polyethylene, high density polyethylene, polyvinyl chloride, and acrylonitrile butadiene styrene. The thickness of the rigid section of the sealing device is preferably from 0.01mm to 10.00mm, more preferably from 0.02mm to 5.00mm, most preferably from 0.05mm to 2.00mm.

[0021] While preferred embodiments of the present invention comprise flexible adhesive films and rigid adhesive sealing devices, the type of sealing device is not restricted to these two types alone. Indeed, it is envisaged that the dispensing opening can be sealed by any manner of device including a cover that is held closed by mechanical means and can be opened by use of a switch, button or other known process.

[0022] In a highly preferred embodiment according to the present invention, the container comprises a rigid adhesive sealing device. Said device preferably comprises a section of flexible adhesive film 4 which covers the dispensing opening and extends beyond the perimeter of said dispensing opening so as to form a seal with the container surface surrounding the dispensing opening. The sealing device additionally comprises a rigid section of material 3 that substantially covers the dispensing outlet. Preferably, said rigid section of material is the material that is cut from the container in order to form the dispensing opening. Said cut out piece of material may or may not be modified after

being cut out. In a further preferred embodiment, the rigid section of the sealing device forms a hinge with the container.

[0023] Suitable flexible adhesive films for use in the present invention are preferably made from paper/plastic laminate or any laminated coextruded or monolayer polymer. Preferably the thickness of the laminated film is from 0.001mm to 3.000mm, more preferably from 0.005mm to 1.500mm, most preferably from 0.010mm to 1.000mm. A preferred laminated film for use in the present invention comprises 0.1mm of polyethylene laminated with 0.025mm of polypropylene. Preferably, these films additionally comprise a layer of adhesive. It is preferred that pressure sensitive glue is used. By pressure sensitive it is meant herein that, within reasonable limits, the adhesive force of the glue is proportional to the pressure with which the adhesive laminate is applied to the bonding surface. The glue is preferably a non-permanent glue such that the label can be peeled off in order to open and close the container numerous times. Mactac® supply a range of suitable adhesives including the particularly preferred MR 978®. Another preferred adhesive is SR6046® supplied by Fasson Avery®. Adhesion strength of the glue, measured according to the FINAT test method, is preferably in the range 0.1N to 100N, more preferable from 0.5N to 50N, most preferably from 3N to 9N. The FINAT test method is well known to those skilled in the packaging and labeling industry and test details are published by FINAT in the FINAT technical handbook, 4th Edition, 1995.

[0024] Containers according to the present invention preferably comprise a loading opening on the bottom side of the container. Preferably, the wipes are inserted into this opening during the packaging process upon manufacture. Once the wipes are inside the container the loading opening is sealed. Preferably, the opening is sealed with a flexible film or sheet 5. Any suitable film or sheet known to the skilled person can be used. The bottom film preferably comprises any polymer material, laminated or monolayer or coextruded film or sheet. Highly preferred films include laminates comprising polyethylene terephthalate and a polyethylene terephthalate metallized layer. Further preferred laminates comprise polyethylene terephthalate and linear low-density polyethylene. Said films further comprise a layer of adhesive. Said films are preferably sealed in place by heat sealing, ultrasonic sealing, high frequency sealing or induction sealing.

[0025] In a further preferred embodiment according to the present invention, the container is reusable. In this preferred embodiment, the loading opening is sealed by a resealable cover. The use of a resealable cover to cover the loading opening allows the consumer to open the container, refill the container with wipes then reseal the container. The use of a resealable container leads to less environmental waste and is appealing to consumers. The loading opening may be sealed with any film, sheet or device known to the skilled person. The loading opening is preferably sealed with a rigid lid or a flexible lid.

[0026] Containers comprising a loading opening and a dispensing opening have a number of advantages over containers comprising a dispensing opening alone. In containers comprising a loading opening, wipes can be conveniently loaded via the loading opening. Containers that comprise only one opening are limited to loading via the dispensing outlet. Since the dispensing opening is usually smaller than the loading opening, the manufacturer must either bend or misshape the wipes in order to force them through. A rigid container having a loading opening that is sealed by a flexible film 5 requires less material than a container with rigid top, side and bottom walls. The use of less material leads to cost saving, less environmental waste and lighter packages which are cheaper to transport.

[0027] The top and side walls of containers according to the present invention are preferably manufactured by thermoforming or injection molding techniques known to those skilled in the art. Cutting of the dispensing opening can be performed by knives, laser or ultrasonic. If the container is made by injection molding, the dispensing opening can be built into the mold and created during the molding process. Preferred materials for making the top and sidewalls of the package are high impact polystyrene, polypropylene, polyethylene terephthalate, low-density polyethylene, linear low-density polyethylene, medium density polyethylene, high-density polyethylene, polyvinyl chloride, and acrylonitrile butadiene styrene. The thickness of the top and side walls of the box is preferably from 0.01mm to 10.00mm, more preferably from 0.02mm to 5.00mm, most preferably from 0.05mm to 2.00mm.

[0028] Containers according to the present invention are rigid. By "rigid" it is meant that when a container is loaded on the top side, according to the "Topload Strength Method" disclosed in DIN55440 or ISO2872, with a mass preferably from 0.1kg to 25.0kg, the horizontal displacement of the container will decrease by less than 10%, preferably less than 5%. Containers whose horizontal displacement reduces by more than 10% when loaded with from 0.1kg to 25.0kg are, for the purposes of this invention, flexible.

[0029] Containers according to the present invention may be of any reasonable length, width and depth. Said containers preferably have a length of 5mm to 1000mm, more preferably from 20mm to 500mm most preferably from 110mm to 220mm. Said containers preferably have a width of 5mm to 1000mm, more preferably from 20mm to 500mm, most preferably from 80mm to 150mm. Said containers preferably have a depth of 5mm to 1000mm, more preferably from 8mm to 500mm, most preferably from 20mm to 80mm.

[0030] Containers according to the present invention preferably contain wet wipes. Said wet wipes may be disposable, man-made, synthetic and/or natural fiber based, pre-moistened or substantially dry. The wipes may be constructed from a web comprising a variety of different materials. Such materials may include synthetic, man-made and natural fibers, cotton fibers, which are generally moistened with an aqueous or non-aqueous cleaning composition which may contain amongst others surfactants, disinfecting agents, preservatives, oils and scents depending on the use envis-

aged.

[0031] The wipes may be produced by any method known in the art. For example, nonwoven material substrates can be formed by dry forming techniques such as air laying, or wet laying such as on a paper making machine. Other nonwoven manufacturing techniques such as melt blown, spun bonded, needle punched, and spun laced methods may also be used. Preferred methods include air laying, carding and wet laying

[0032] Pre-moistened or wet wipes, as they are also known, typically comprise a liquid composition and thus may be utilised in a variety of applications, both domestic and industrial and perform a variety of functions. Wipes are commonly used for human cleansing and wiping such as face and hand cleansing and anal, perineal and genital cleansing, for example as intimate hygiene wipes, such as feminine wet wipes. Wet wipes may also be used for application of substances to the body including removing and applying of make-up, skin conditioners and medications. Another application of wipes is during diaper changes and also for the treatment of adult and baby dermatitis partly caused by the use of diapers and incontinence devices. Wet wipes may also include articles used for the cleaning or grooming of pets. One particularly preferred application for wet wipes is wiping and/or cleaning of hard surfaces and the application of compositions to surfaces, for example kitchen and especially bathroom surfaces, spectacles, shoes and surfaces which require cleaning in industry, for example surfaces of machinery or vehicles. More preferably wipes are toilet cleaning wipes, most preferably said wipes are flushable toilet cleaning wipes.

[0033] A variety of webs and liquid compositions suitable for application to such webs are known and disclosed in the art listed below. Typically the webs require a binder in order to provide strength to the web, in particular when wet.

[0034] WO 89/05114 discloses disposable wipes for hard surface cleaning which are impregnated with a liquid composition and EP-A-0 211 773 discloses a cloth for polishing a car. EP-A-0 113 254 discloses an antimicrobial non-woven fabric. The fabric may be provided from natural or synthetic fibres or blends thereof. According to the disclosed invention an antimicrobial agent is selected which forms a colloidal suspension with a given conventional binder.

[0035] EP-A-0 233 943 discloses a non-woven wet wipe which is said to be antimicrobially active. In a preferred embodiment the web for the wet wipes is provided from wood pulp and comprises a non-acrylate binder (ethylene vinyl acetate). The wet wipes further comprise an antimicrobial agent, which is mixed into the binder and applied to the non-woven web therewith.

[0036] US 5 888 524 discloses an antimicrobial composition for use with conventional wet wipes and lotions. The wet wipes can be provided from synthetic or natural fibres or a combination thereof. According to the disclosed invention the wet wipes are saturated with a rather high amount of the antimicrobial composition, indeed, it is taught that the weight of the lotion should be up to 6 times the weight of the dry wipe.

[0037] The composition loaded onto the wipes that are preferably used in the present invention is preferably suitable for use as a cleaning and/or disinfecting composition. The compositions may be formulated in any suitable form for example as a solid, paste or liquid. In the case where the compositions according to the present invention are formulated as solids, they can be applied to the substrate as a solid or alternatively can be mixed with an appropriate solvent, typically water, before application to the substrate. Where the composition is in liquid form, the compositions are preferably but not necessarily formulated as aqueous compositions. Liquid compositions are preferred herein for convenience of use.

[0038] In a preferred embodiment the liquid compositions according to the present invention are aqueous compositions typically comprising from 50% to 99.9% by weight of the total composition of water, preferably from 70% to 99% and more preferably from 80% to 99%. Compositions suitable for use as a cleaning composition preferably have pH in the range of from 5 to 13, more preferably from 7 to 13 and most preferably from 8 to 10. Compositions for use as disinfecting compositions preferably have a pH in the range of from 0 to 7, more preferably from 1 to 5 and most preferably from 2 to 4. The pH of the compositions can be adjusted by using organic or inorganic acids, or alkalinising agents, such as sodium hydroxide.

[0039] The compositions herein may comprise a variety of ingredients including, but not limited to peroxygen bleach, disinfecting components, organic acids, surfactants, chelants, solvents, builders, stabilisers, bleach activators, soil suspenders, dye transfer agents, brighteners, perfumes, anti dusting agents, enzymes, dispersant, dye transfer inhibitors, pigments, perfumes, radical scavengers, pH buffers, dyes or mixtures thereof.

[0040] The wipes may be packaged in the container in any convenient configuration which allows easy removal of a single or multiple wet wipe from the container. Preferably the wipes are packaged in rolls, stacks, piles or are inter-leafed. More preferably the wipes are provided in a stacked configuration which may comprise any number of wipes. Typically, the stack comprises from 2 to 150, more preferably from 5 to 100, most preferably from 10 to 60 wipes. Moreover the wipes may be provided folded or unfolded. Most preferably, the wipes are stacked in a folded configuration.

[0041] In a preferred embodiment according to the present invention, the dispensing opening extends over the top side and one other side. The area of the dispensing opening on the top side may be the same as, greater than, or less than the area of the dispensing opening on the side wall. Preferably, in rigid containers according to the present invention, the stacking of the wipes is such that the plane of the wipes is coplanar with the side of the container that comprises

the greatest area of the dispensing opening.

[0042] Further details of wipes suitable for inclusion in containers according to the present invention can be found in European Patent Application EP 00 87 0142

5 Examples

[0043] Provided below are, non-limiting, examples A to D of cleaning compositions which may be incorporated into the wipes of the present invention.

Ingredient	A	B	C	D
	% w/w	% w/w	% w/w	% w/w
Ethanol	9.4	9.4	9.5	9.5
C12-14 Amine Oxide	0.4	0.4	-	-
Propylene Glycol Butyl Ether	0.55	0.55	-	-
Diethylene Glycol Butyl Ether	0.55	0.55	-	-
Polypropylene glycol mono butyl ether	0.25	0.25	-	-
Silicone	0.003	0.003	0.003	0.003
Citric acid	0.75	0.75	-	-
Sodium hydroxide	0.1	-	-	-
Hydrogen Peroxide	-	1.00	-	-
Salicylic acid	-	0.03	-	-
BHT	-	0.01	-	-
Geraniol	-	0.0375	0.1	0.1
Thymol	-	0.025	-	-
C12-14 Betaine	-	-	0.2	-
Dobanol 91-8	-	-	0.8	0.8
C8 alkyl sulphate branched	-	-	0.6	0.6
C10 Amine Oxide	-	-	-	0.2
Lactic acid	-	-	1.5	1.5
Perfume	0.18	0.0375	0.15	0.15
Water	87.82	86.95	87.15	87.15
Dobanol® 91-8 is a C ₉₋₁₁ EO8 ethoxylated alcohol available from shell				

45 Claims

1. A rigid container having a top (1), and side walls (2), and having a dispensing opening extending over the top and at least one side wall
2. A container according to claim 1 wherein the dispensing opening is covered by a sealing flap.
3. A container according to claim 1 wherein the dispensing opening is covered by a flexible adhesive film (4).
4. A container according to claim 1 wherein the dispensing opening is covered by a rigid adhesive sealing device (3,4).
5. A container according to claim 1 which comprises a bottom loading opening.
6. A container according to claim 5 wherein said loading opening is covered with a preferably flexible sealing film or

sheet (5).

7. A container according to claim 5 wherein said loading opening is covered with a resealable cover.

5 8. A container according to claim 1 comprising wet wipes.

9. A process of loading a rigid container according to claim 1 with wipes comprising the steps of loading the wipes into the container via the bottom loading opening then sealing the bottom opening closed.

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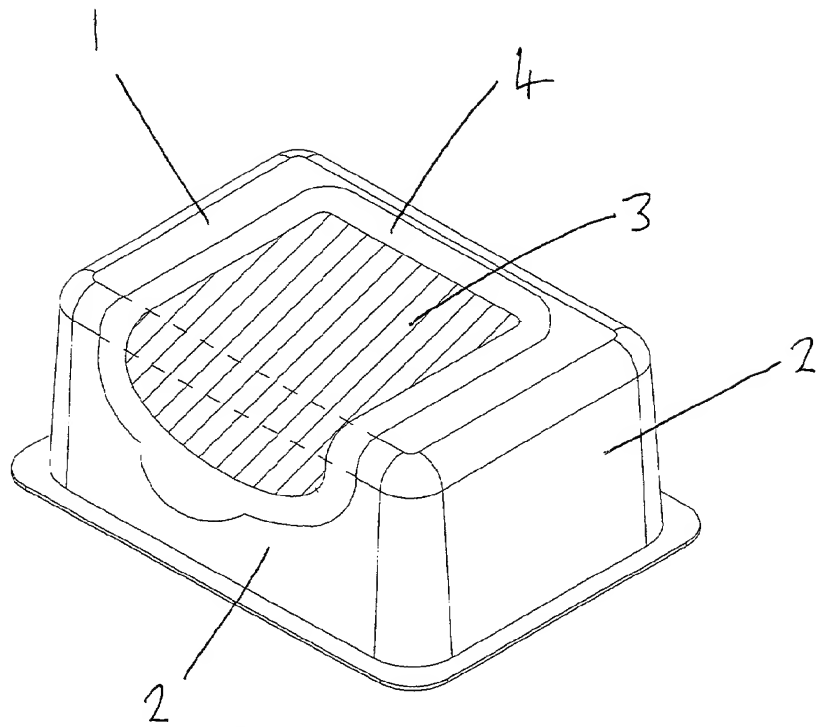


FIG. 1

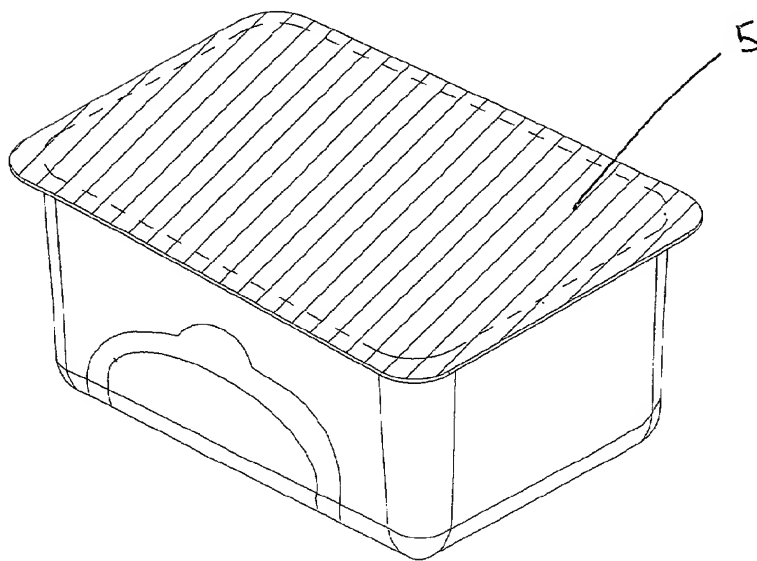


FIG. 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 87 0101

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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Y	US 5 647 506 A (JULIUS ROBERT P) 15 July 1997 (1997-07-15) * column 6, line 30 - line 53 * * column 6, line 66 - column 7, line 2; figures *	2,3,5-9	
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The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 26 September 2001	Examiner Spettel, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 01 87 0101

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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26-09-2001

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